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# Applicant Initiated Interview Request Form

Application No.: 09/642,205 First Named Applicant: M. P. Neeper
Examiner: Q. Janice Li Art Unit: 1632 Status of Application: pending

**Tentative Participants:**
(1) Alysia A. Finnegan (2) Joanne M. Giesser
(3) Q. Janice Li (PTO) (4) _____

**Proposed Date of Interview:** 6/24/2003 **Proposed Time:** 2:00 (AM/PM)

**Type of Interview Requested:**
(1) [X] Telephonic (2) [ ] Personal (3) [ ] Video Conference

**Exhibit To Be Shown or Demonstrated:** [ ] YES [X] NO
**If yes, provide brief description:** _____

## Issues To Be Discussed

| Issues (Rej., Obj., etc) | Claims/ Fig. #s | Prior Art | Discussed | Agreed | Not Agreed |
|---|---|---|---|---|---|
| (1) Rej. | 24-29 | N/A | [ ] | [ ] | [ ] |
| (2) Rej. | 1-4, 6, 9, 10, 13, 14, 17, 19, | N/A | [ ] | [ ] | [ ] |
| (3) | 20, 24-30 | | [ ] | [ ] | [ ] |
| (4) | | | [ ] | [ ] | [ ] |

[ ] Continuation Sheet Attached

**Brief Description of Arguments to be Presented:**
Applicants propose new amendments (attached) to place application in condition for allowance. In the alternative, Applicants request removal of finality pursuant to MPEP §706.07 because new §112 para. 1 rejection of claims 24-29 (alleged non-enablement of mode of administration.)

**An interview was conducted on the above-identified application on** _____.

NOTE:
**This form should be completed by applicant and submitted to the examiner in advance of the interview (see MPEP § 713.01).**
**This application will not be delayed from issue because of applicant's failure to submit a written record of this interview. Therefore, applicant is advised to file a statement of the substance of this interview (37 CFR 1.133(b)) as soon as possible.**

Alysia Finnegan
(Applicant/Applicant's Representative Signature)

(Examiner/SPE Signature)

MERCK

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Patent Department

# Facsimile Cover Sheet

**TODAY'S DATE:** June 19, 2003

**PLEASE DELIVER THE FOLLOWING MATERIALS TO:**

Examiners Name: Q. Janice Li
Examiner's Fax Number: 703-746-5158
Group Number: 1632

**THIS MESSAGE IS FROM:**

Name: Alysia A. Finnegan Phone Number: (732) 594-2583
Mail Location: RY 60-30 Fax Number: (732) 594-4720

**RE:**

U.S. Appl. Serial No.: 09/642,205
Filing Date: August 21, 2000
Applicants File Ref: 20413Y
For: SYNTHETIC HUMAN PAPILLOMAVIRUS GENES

**NUMBER OF PAGES BEING TRANSMITTED (INCLUDING COVER):** 7

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## Proposed Amendments to Claims

1. (Twice Amended) A synthetic polynucleotide comprising a sequence encoding a codon-optimized human papillomavirus serotype 16 (HPV16) protein[, or mutated form thereof which has reduced protein function for viral replication and cellular transformation as compared to wild-type protein, but which maintains immunogenicity,] wherein said polynucleotide sequence comprises codons that are optimized for expression in a human host.

2. A polynucleotide according to Claim 1 wherein the protein is selected from the group consisting of: L1, L2, E1, E2, E4, E5, E6 and E7.

3. A polynucleotide according to Claim 2 wherein the protein is selected from the group consisting of: L1, E1, E2, and E7.

4. A polynucleotide according to Claim 2 which is DNA.

6. (Previously Amended) A polynucleotide according to Claim 4 wherein the protein is an HPV16 L1 protein.

7. A polynucleotide according to Claim 6 which comprises the polynucleotide of FIGURE 1 (SEQ.ID.NO: 1).

[9. A polynucleotide according to Claim 4 wherein the protein is a mutated form of E1.]

10. (Previously Amended) A polynucleotide according to Claim [9] 4 which is an HPV16 E1 protein.

11. (Amended) A synthetic polynucleotide [according to Claim 10] which comprises a sequence of nucleotides as set forth in [the polynucleotide of] FIGURE 2 (SEQ. ID.NO:2).

[13. A polynucleotide according to Claim 4 wherein the protein is a mutated E2 protein.]

[14. A polynucleotide according to Claim 13 which is an HPV16 E2 mutated protein.]

15. (Amended) A synthetic polynucleotide [according to Claim 14] which comprises a sequence of nucleotides as set forth in [the polynucleotide of] FIGURE 3 (SEQ. ID.NO: 3).

17. (Previously Amended) A polynucleotide according to Claim 4 wherein the protein is an HPV16E7 protein.

18. (Amended) A synthetic polynucleotide [according to Claim 17] which comprises a sequence of nucleotides as set forth in[the polynucleotide of] FIGURE 4 (SEQ. ID.NO:4).

19. (Twice Amended) An adenoviral vaccine vector comprising an adenoviral genome with a deletion in the E1 region, and an insert in the E1 region, wherein the insert comprises an expression cassette comprising:

A) a polynucleotide encoding a codon-optimized HPV16 protein selected from the group consisting of L1, E1, E2, and E7 proteins [or mutant forms thereof], wherein said polynucleotide is codon-optimized for expression in a human host cell; and

B) a promoter operably linked to the polynucleotide.

20. A vector according to Claim 19 wherein the adenoviral genome also contains a deleted E3 region.

21. (Previously Amended) A shuttle plasmid vector comprising a plasmid portion and an adenoviral portion, the adenoviral portion comprising: an adenoviral genome with a deletion in the E1 region, and an insert in the E1 region, wherein the insert comprises an expression cassette comprising:

A) a polynucleotide encoding a codon-optimized HPV16 protein selected from the group consisting of L1, E1, E2, and E7 proteins, wherein said polynucleotide is codon-optimized for expression in a human host cell; and

B) a promoter operably linked to the polynucleotide.

22. (Previously Amended) A vaccine plasmid comprising a plasmid portion and an expression cassette portion, the expression cassette portion comprising:

A) a polynucleotide encoding a codon-optimized HPV16 protein selected from the group consisting of L1, E1, E2, and E7 proteins, wherein said polynucleotide is codon-optimized for expression in a human host cell; and

B) a promoter operably linked to the polynucleotide.

23. (Previously Amended) A plasmid according to Claim 22 wherein the plasmid portion is V1Jns.

24. (Twice Amended) A method for inducing immune responses to HPV16 in a human subject [vertebrate] which comprises administering to [a vertebrate] the subject between 1 ng and 100 mg of the composition of Claim 1 [to the vertebrate].

25. (Twice Amended) A method for inducing immune responses to HPV16 in a human subject [vertebrate] which comprises administering to [a vertebrate] the subject between $10^{11}$-$10^{12}$ particles of an adenoviral vector carrying the composition of Claim 1 [to the vertebrate].

26. (Twice Amended) A method for inducing an immune response against human papillomavirus type 16 (HPV16) in a human subject [vertebrate], comprising

A) administering to [a vertebrate] the subject a first vector comprising a polynucleotide encoding a codon-optimized HPV16 protein selected from the group consisting of L1, E1, E2, and E7 proteins, wherein said polynucleotide is codon-optimized for expression in a human host cell;

B) allowing a predetermined amount of time to pass; and

C) administering to said [vertebrate] subject a second vector comprising adenoviral vaccine vector comprising an adenoviral genome with a deletion in the E1 region, and an insert in the E1 region, wherein the insert comprises an expression cassette comprises

i) a polynucleotide encoding a codon-optimized HPV16 protein selected from the group consisting of L1, E1, E2, and E7 proteins [or mutant forms thereof], wherein said polynucleotide is codon-optimized for expression in a human host cell; and

ii) a promoter operably linked to the polynucleotide.

[27. A method according to Claim 26 wherein the vertebrate is human.]

28. (Twice Amended) A method for inducing immune responses to HPV16 in a human subject [vertebrate] comprising

A) administering to [a vertebrate] the subject a plasmid vaccine, wherein the plasmid vaccine comprises a plasmid portion and an expression cassette portion, the expression cassette portion comprising:

i) a polynucleotide encoding a codon-optimized HPV16 protein selected from the group consisting of L1, E1, E2, and E7 proteins, wherein said polynucleotide is codon-optimized for expression in a human host cell; and

ii) a promoter operably linked to the polynucleotide;

B) allowing a predetermined amount of time to pass; and

C) administering to said [vertebrate] subject an adenoviral vaccine vector comprising an adenoviral genome with a deletion in the E1 region, and an insert in the E1 region, wherein the insert comprises an expression cassette comprising:

i) a polynucleotide encoding a codon-optimized HPV16 protein selected from the group consisting of L1, E1, E2, and E7 proteins [or mutant forms thereof], wherein said polynucleotide is codon-optimized for expression in a human host cell; and

ii) a promoter operably linked to the polynucleotide.

[29. A method according to Claim 28 wherein the vertebrate is human.]

30. (Twice Amended) A method of making a codon-optimized HPV16 protein comprising expressing in a human host cell a synthetic polynucleotide encoding a human papillomavirus serotype 16 (HPV16) protein, [or mutated form thereof which has reduced protein function for viral replication and cellular transformation as compared to wild-type protein, but which maintains immunogenicity,] wherein said polynucleotide sequence comprises codons optimized for expression in a human host.